

probably is more closely related to that group than any other. Nevertheless, its extreme anatomical divergence would warrant the erection of a new genus. Especially peculiar features of the new monotypic subgenus, *Radiodomus*, are: (1) its exceptionally long "primary" ureter, (2) its spermatheca which is of the short type and almost columellar in position, (3) its two penial appendices (flagella) and (4) the complete absence of entocones from its radula. This last feature, taken by itself, would transfer *Radiodomus* to the Endodontinae, but I believe it is more than counterbalanced by the primitive kidney and jaw, which are most like those in *Radiodiscus* and the other Helicodiscinae.

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#### TYPE OF ANODONTITES BRUGIÈRE

BY WILLIAM B. MARSHALL

U. S. National Museum  
United States National Museum

Thiele, 1909 (Nachr. deutsch. Malak. Gesell.), and Ortmann, 1911 (NAUTILUS, Vol. 25, pp. 88-91), did a real service to students of South American malacology in reviving Bruguière's generic name *Anodontites* (Journ. de Hist. Nat., Vol. 1, pp. 103-109, pl. 8, figs. 6, 7, 1792), proving that it is a perfectly valid name, and takes precedence over Gray's name *Glabaris* (Proc. Zool. Soc. London, p. 197, 1847).

The type of *Anodontites* is *crispata* Brug. (l. c.). That has been settled beyond a doubt. Ortmann, 1921, "South American Naiades" (Mem. Carnegie Museum, Vol. VIII) gives a detailed description and a number of figures of what he took to be *A. crispata* Brug. Unfortunately his identification was incorrect. The specimens he figured are *Anodontites colombiensis* Marshall, 1922 (Proc. U. S. Nat. Mus., Vol. 61, p. 7, pl. 1, fig. 5, pl. 2, figs. 13, 14, pl. 3, figs. 5, 13, 14.)

The sculpture of *A. colombiensis* is very peculiar, being much wrinkled like dried paint, and arranged in a more or less radial pattern. This peculiar sculpture and the specific name *crispata* which very well describes it probably led Ortmann into his error.

The true *Anodontites crispata* has a radically different sculpture, arranged in distinctly radiating bands of beautifully regular, closely-set festoons, so disposed that they form also a concentric sculpture. Almost exactly this style of sculpture is found also on *Diplodontites cookei* Marshall, from Colombia (Proc. U. S. Nat. Mus., Vol. 61, p. 2, pl. 1, figs. 1, 3, 7, 8, 10, pl. 3, fig. 4, 1922); *Nephronaias reticulata* Simpson, from Honduras (Proc. Acad. Nat. Sci. Phila., p. 77, pl. 2, fig. 3, 1900), and on *Nephronaias elvae* Walker, from Nicaragua (NAUTILUS, Vol. 38, p. 52, pl. 1, 1924). The type of sculpture of these four species is believed to be the most delicate and perhaps the most beautiful displayed by any of the pearly fresh-water mussels. It is an interesting fact that, so far as known to the writer, this style of sculpture is found only in naiades from the region which includes the northern edge of South America, Honduras and Nicaragua. For some years I thought it was but a periostracal character, but at least one of them, *D. cookei*, shows it to be sculptural, i. e. in the calcareous matter; and this sculpture shows in the periostracum which is tightly applied to the shell. This was proved by removing the periostracum of one-half of a valve of *D. cookei* by immersing it in hot caustic potash solution which destroyed the periostracum, leaving the shelly matter beneath pure white but showing every detail of sculpture just as it appeared with the periostracum in place. The same treatment of *A. colombiensis* proved that its peculiar surface resembling wrinkled dried paint is likewise structural and not merely periostracal.

Ortmann, (1921, l. c.) says the type locality of *A. crispata* is South America. Perhaps he had not seen Bruguière's paper. In that paper Bruguière distinctly says

the shell came from streams in Guiana. He uses this sentence: Cette coquille habite dans les rivières de la Guyanne, d'ou elle m'a ètè envoye par M. le Blond. The shells figured by Ortmann as *A. crispata* came from the Rio de la Paila, a tributary of the upper Rio Cauca of the Rio Magdalena drainage. This is a long distance from Guiana, there are high mountains between and the drainage of Guiana has no connection with the Magdalena system.

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INHERITANCE OF DIRECTION OF COIL IN ACHATINELLA  
BY OLAF OSWALD

On a collecting trip to the Waiawa-Manana ridge, Oahu, on April 13, 1929, I found a total of 152 shells of *Achatinella swiftii*, of which 78 were sinistral and 74 dextral. One of these sinistral specimens contained a dextral embryo. This colony was about half-way down the southerly slope of the ridge. On the northerly slope, in a ravine about 150 yards directly opposite, I found 40 specimens, all dextral. A couple of hundred yards *makai* (seaward) from this second colony I collected 28 shells, all sinistral. The colonies on the southerly and northerly slopes were separated by a heavy growth of *uluhi* (*Gleichenia dichotoma*) fern, well known to collectors as an isolator of *Achatinella*.

On April 27th, at a point on the south slope of the southerly Waiawa ridge, almost directly opposite and about  $\frac{3}{8}$  mile northerly from the above localities, I found altogether 48 specimens, divided 41 dextral and 7 sinistral. Two of these sinistral animals had each a dextral embryo. In at least three instances, in this particular colony, I had the rare experience of gathering one dextral and one sinistral full grown specimen of one species from a single leaf. These also were *Achatinella swiftii*.

At Punakuu Valley, on the opposite (easterly) side of the island of Oahu, I found recently a colony of *Ach. bulimoides*